

第四届重味强子结构专题研讨会

Report of Contributions

Contribution ID: 1

Type: **not specified**

Factorization formula connecting the Λ_b LCDA in QCD and boosted HQET

Light-cone distribution amplitudes (LCDAs) are essential to precision phenomenology in heavy baryon decays. In this work, we derive a factorization formula connecting the leading-twist QCD LCDA to the boosted HQET LCDA of the Λ_b baryon in the peak region. We demonstrate a significant simplification of the matching procedure by applying the method-of-regions to perturbative calculations. With this simplification, we calculate the required one-loop perturbative corrections to the QCD and boosted HQET LCDAs in the $\overline{\text{MS}}$ scheme, and thereby obtain the one-loop jet function that serves as the matching kernel in the factorization formula. We have also performed the matching of the Λ_b decay constants in QCD and boosted HQET, leading to the final factorization formula connecting the LCDAs in these two theories. A detailed discussion of the Λ_b QCD LCDA in the tail region is provided. This work provides an essential step toward lattice QCD calculation of heavy baryon LCDAs in the future.

Primary author: SHI, Yuji (华东理工大学)

Co-author: Dr ZENG, Jun (Shanghai Jiao Tong University)

Presenter: SHI, Yuji (华东理工大学)